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density, though as high as 220 to the square mile, cannot be an over-estimate; it is below the average of the sample areas and much below the 450 found in one of them, which is by no means the densest in the reserve.

The geographical features vary from mountains to flat country. The rainfall, which coincides with the hot months, October to March, is very good on the hills. In the flat country to the north it is rather uncertain. The mountains have many springs, but neither of the two main rivers is navigable and there is little life in them. The people do not eat fish and have no river craft, though they speak of a bark canoe (*legagwa*) used in the old days. On the slopes of the hills there are forests and one is of magnificent cycads (Mujaji palms). The people have an intimate knowledge of the names, the qualities, and the uses of the flora. Their dependence upon trees, shrubs, and grasses for food, economic purposes, and medicine is one of the most impressive aspects of their culture. The soil is a reddish, fairly fertile loam. At present there is hardly any game; but in any case the Lovedu were never great hunters, and knowledge of the fauna is now of small use. The temperature is never excessive; the summer rains cool the hot air and the cold winds are easily subdued by bright sunshine. Summer merges into winter and winter overlaps summer; there is no well-marked spring or autumn. The people are agriculturists rather than pastoralists; the few cattle they have and the more numerous goats are not considered so much as food but rather as pivots of social relationship.

The people of the royal group, the nucleus of the tribe, live mostly on the mountains; the valleys and flats are occupied by Shangana-Tonga, recent-comers who are despised by the Sotho, and by the Roka, residents of the flats, looked upon as somewhat inferior though of diverse Sotho ancestry. The nuclear group or Lovedu proper are not numerous. Their group name, *Inuwo*, is what we may call the surname of one in every ten people in the reserve. Other *Inuwo*, 'brothers' of the Lovedu, rule such tribes as those of Sekhopo, Mamaila and Rakwadu, but many are scattered among dozens of alien tribes. In the whole Lovedu lyerveld the *Inuwo* are much less than 10 per cent. of the population.

The non-nuclear groups in the reserve are accretions from outside (if we except the Khigna, the Digona and some Lions and Elephants who either were in the country or came with the Lovedu). They have been

and the country mountainous, stationed themselves in a body at a single spot in the valley to which the people were then called. The new arrangements caused confusion and many of those who had collected in their districts dispersed to their homes and never presented themselves for enumeration. In addition, large numbers, as is their habit in the face of European intervention, secreted themselves in the bush. European eye-witnesses estimate that only 33 to 40 per cent, say 36·5 per cent, were actually enumerated, but Natives place the figure as high as 50 per cent. Taking the average of 43·25 per cent, we arrive at a total population for the reserve of 15,238 × 100 ÷ 43·25, or 35,232. (3) The number of taxpayers in the Lovedu location, which is about 4,000. On the accepted basis of calculation, the location population would be 4,000 × 5, or 20,000—that is 1·72 times that of the census figure of 11,636, and the total for the reserve may be calculated as 15,238 × 1·72 or 26,209. Finally, averaging the three figures, 36,207, 35,232 and 26,209, we get 32,549 or, to the nearest thousand, 33,000, which is the figure we adopt.

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More thorough ploughing and a revival of the interest men used to have in agriculture would make the balance swing evenly. A man should not feel, as he tends to do to-day, that he pulls his full weight if he goes out periodically to earn wages, ploughs the fields, discusses cases, and builds huts. He has plenty of time to take a larger part in agriculture, as he did in the old days and as many of the older men still do.

Ploughing has brought about many other changes. It has necessitated clearing of the stumps and stones, and broken down to a large extent the old contour-terracing. This has accelerated erosion, which was in any case inevitable owing to the overstocking, just as overstocking is inevitable, not because men keep many cattle, but because of the density of the population. Erosion impoverishes the soil and over-use exhausts it. The result is that the initial benefits of the plough, which made larger gardens and better cultivation possible, are gradually being turned into liabilities. Every one will tell you that crops are more abundant to-day than in the old days; but the price is already heavy, and as the quality of the soil gets worse it will be increasingly heavier. Variety, the single-crop field, rotation of crops have gone. The planting season is much later and less concentrated in the months of October to December than in the old days, for ploughing is a rapid process as compared with hoeing, and one can avail oneself of good rains even as late as the middle of February. Late ploughing is not always deliberate; the small number of available ploughs and, more serious, the inadequacy of the draught animals, are equally responsible. The distribution of these resources is effected by various forms of co-operation, mostly partnerships in which one supplies labour, another the plough, and still another the cattle or donkeys. These partnerships, though patterned upon old forms of co-operation, have to take account of new factors, economic rather than social, and lead to new alinements in the society. Overstocking and ploughing have contributed to the silting up with useless sand of the old riverside gardens. Their original purpose, which was to tide men over the scarcity in the months November to February, partly fell away when ploughing brought a measure of abundance, but now that the old needs are reasserting themselves these gardens are destroyed. In their place the new Europeanized gardens, irrigated by furrows along the upper stretches of the smaller streams, have arisen, but the incentives that stimulate this new experiment are somewhat different: the gardens are for profit, not for providing an advance crop. The effects of ploughing may be pursued in many directions: it has emphasized the economic as against the purely social value of cattle, at the same time eliminating milk from the diet of adults; it has to some extent militated against husbanding the food resources; it has stimulated excessive drinking of beer; and it has released a large amount of energy for which there is little creative outlet.

For the present, agriculture is in unstable equilibrium. Every adult still has his own field, but the extreme limit of land available for cultivation has been reached. Limitation of stock can no longer ease the situation, as the chief evil is not overstocking but over-population. About 80 per cent. of the entire soil is arable land, at present or in the near past put under cultivation; as much as 80 per cent. of this land is

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cattle-dipping, quarantine regulations, and the reclamation of the reserves, have increased in recent years. Unless some compromise can be reached in regard to the prohibition of cutting down trees, all the Native industries will be stamped out. The change from wattle and daub to sun-dried bricks for constructing huts began before the forestry regulations and is now accelerated, fortunately without causing a major disturbance. Dipping is regarded as a sinister device for keeping down the number of cattle—the hurried driving to and from the dip and the lack of care of wounded cattle or of those in calf do in fact cause deaths, but the absence of milch cows, also attributed to dipping, is the result of overworking the cattle, their poor quality, and inadequate grazing land. Natives believe that dipping exists for the special benefit of dipping officials, who come as poor men, but are rich when they leave. Dipping and quarantine regulations, as well as grazing fees in the Crown Lands, have led to complications in transferring the cattle of the marriage exchanges, driven out customs incipiently accepted from the West, such as cattle posts and cattle racing on the day of the first fruits festival, and introduced the conception of fees for *hu fisa*, the care of cattle by others.

But one of the most unsuspected results is the growth of a reluctance, not merely to slaughter, but also to sell cattle. The evil of this tendency is incalculable, but it is an inevitable result of modern conditions. Sales are difficult, because of the restrictions on movement and the absence of markets; the need to sell or to slaughter is smaller than it was because money is available and agriculture less precarious; the emphasis upon material possessions and the liberation among Christians of cattle from the chain of cattle exchanges tends to imbue them with new values. The tendency is for them to become a standard of wealth rather than a means of subsistence or of facilitating marriage. There is a strong aversion even to slaughter the cattle that used to be killed in marriage negotiations, their place being taken by money and clothes. A strong incentive to slaughter cattle cannot easily be created, since it is not meat, but beer, with which one regales one's neighbours and maintains a reputation for liberality. Among the Lovedu the growing anti-economic conception of cattle has nothing to do with their alleged sacredness.

Western culture has presented itself with a formidable problem. Improvement of stock by way of pedigree bulls, the Lovedu have decisively rejected: they suspect that the Government will claim perhaps the calves, perhaps some other right of interference. They have also for similar reasons refused other aid, such as the introduction of a suitable grass.

Not all the great changes in agriculture have come from the European. The Shangana-Tonga introduced valley cultivation, which was subsequently stimulated by congestion on the hills and by the greater ease of manipulating the plough in the valleys than on the hillsides. With the plough, rejected in its early heavy form, but accepted later when it became lighter, a new set of reactions started. Crops and beer became more abundant, the old forms of co-operative work were transformed, and the effect of the absence in town of the men was minimised. But the plough is destroying the protective verges of fields, sweeping away the borders

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177 planted with sweet sorghum, and breaking down the contour walls of
241 stone that stopped the rush of water on the slopes. The soil, taxed to its
134 utmost by the mixed crops planted, is gradually becoming exhausted; it is being more easily washed away and the erosion has already silted up the lower stretches of rivers, so that old riverside gardens there have been destroyed. The introduction of donkeys added to the cumulative destructive effect, with which neither the combined forces of agricultural demonstrators and forest rangers, nor the stimulus of agricultural shows and competitions, nor the innate ingenuity of the Native can hope to contend. The fundamental evil is over-population, not over-stocking. In the old days a man hoed near grazing land at his own risk; to-day he must plough where he can.

177 A miscellaneous series of reactions may be briefly enumerated. Money
437 subserves some purely economic purposes: it purchases various European articles, such as clothes and cloths, sewing machines and soap, candles, lanterns and paraffin, sieves and enamel dishes, iron objects, cycles, and wagons. But, compared with articles of local manufacture, these introductions are insignificant except among Christians. In the new forms of service and co-operation money also has a purely economic function and threatens the old reciprocities. But it is not always easy to say whether money economy is more rapidly transforming institutions than institutions are transforming money economy: often money becomes incorporated into the pattern of goodwill exchanges. The victory may lie with
[182] Western conceptions, but incalculable forces are massing against them, and there is a tendency among the best-educated Natives to revive the past in answer to the challenge of the European.

177 The result will be a subtle and unpredictable interpretation. The
182 suspicion that motivates the reaction is both effect and cause: it is the result of a feeling of insecurity, but it leads to protective adjustments in all spheres of culture. A woman may refuse to don a newly bought European blanket until it has been soiled by being worn by some one else susceptible to its dangers or, as they say, until 'the European can no longer be seen in it'. This attitude is evidence both of an old pattern and of profound distrust of the European. Tropical ulcers are sometimes
[164] attributed to Nyasaland boys, who are hated for their sexual adventures with Lovedu women; but in fact tropical ulcers have always been there, though the serious lesions appeared for the first time only after the great famine of 1894–6. The psychological determinants of change are resultants of subtle combinations of objective facts and subjective errors.

177 Change of diet in recent years has contributed to the evil of malnutri-
146 tion. Its causes are complex. On the one hand, the variety of old crops
182 has been reduced by the plough and congestion destroys the vegetation that is used as relishes and fruits; on the other, the substitutions are inadequate and consist mostly of starches. Physical degeneration weakens the Native as an employee, lassitude adversely affects the incentives and the energy necessary for the tasks of subsistence, and a sense of insecurity fans the flames of suspicion. The difficulties of the dietician and the medical man increase immensely. This is what an intelligent and particularly unbiased young man feels: 'In European hospitals they plan